

Notice of Allowability

Application No.

09/731,690

Examiner

Charles E. Anya

Applicant(s)

PORKKA, JOSEPH A.

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to remarks/arguments of 11/04/05 and interviews of 2/17/06 & 2/21/06.
2. ☒ The allowed claim(s) is/are 1-7,8,11-14,16,18,19,23-29; now renumbered as 1-21.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date 2447/06 11/2/04
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☒ Interview Summary (PTO-413),
Paper No./Mail Date 2/17/06
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☒ Other The drawings are acceptable.


WILLIAM THOMSON
SUPERVISORY PATENT EXAMINER

EXAMINER'S AMENDMENT & REASONS FOR ALLOWANCE

I. EXAMINER'S AMENDMENT:

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.
2. Authorization for this examiner's amendment was given in a telephone interview with Ms. Marcia Tunheim (Reg. No. 42,189) on 2/17/06.

In the claims:

- a. Claim 8;

Rewrite claim 8 as follows:

A method for passing intraprocess messages between scripting threads in a process residing in a computer, the method comprising:

- creating a first scripting thread of execution;
- creating a first thread queue for the first scripting thread;
- obtaining a first address associated with the first thread queue;
- creating a second scripting thread of execution;
- passing, to the second scripting thread, the first address for use by the second scripting thread to send messages to the first scripting thread;
- creating a second thread queue for the second scripting thread;

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obtaining a second address associated with the second thread queue; and
passing, to the first scripting thread, the second address for use by the first
scripting thread to send messages to the second scripting thread.

b. Cancel claim 10;

c. Claim 14;

Rewrite claim 14 as follows:

A method for compiling a program having a plurality of sections, the method
comprising:

creating one of a plurality of scripting threads for each section of the program,
each scripting threads executes an associated script for compiling the associated
section, wherein each script is independent of the program;

creating a control thread to asynchronously communicate with each of the
plurality of scripting threads so that commands can be issued from the control thread to
the plurality of scripting threads in parallel, wherein asynchronously communicating with
each of the plurality of scripting threads via a plurality of message queues, each
scripting thread being associated with a scripting thread queue of the plurality of
message queues and the control thread being associated with at least one control
thread queue of the plurality of message queues, thereby resolving interdependencies
among different sections of the program that are being compiled;

providing the control thread a reference to each scripting thread queue;

providing each scripting thread a reference to a corresponding control thread queue of the plurality of control thread queues, thereby enabling the control thread to put at least one message in each scripting thread queue and each scripting thread to put a response message in its corresponding control thread queue; and

interpreting each script using a script engine, the script engine having an inter-thread signaling mechanism, wherein the control thread uses the signaling mechanism to alert one of the plurality of scripting threads whenever the control thread has sent a message to the one scripting thread.

d. Cancel claim 17;

e. Claim 18;

Rewrite claim 18 as follows:

A system for compiling a program having a plurality of sections, the system comprising:

a computer;

a plurality of scripts, each script for compiling one section of the program, wherein each script is independent of the program;

a plurality of scripting threads executing on the computer, each scripting thread being associated with one of the plurality of scripts, wherein each section of the program is compiled under the direction of the associated script executed by the associated scripting thread;

a control thread executing on the computer for coordinating the activity of the plurality of scripting threads by communicating asynchronously with the plurality of scripting threads via a plurality of message queues, thereby resolving interdependencies among different sections of the program that are being compiled, wherein the control thread is associated with one or more control thread queues of the plurality of message queues and each scripting thread is associated with a scripting thread queue of the plurality of message queues, the control thread has a reference to each scripting thread queue;

each scripting thread has a reference to a corresponding control thread queue of the plurality of control thread queues, thereby enabling the control thread to put one or more of the messages in each scripting thread queue and each scripting thread to put a response messages in its corresponding control thread queue; and

a script engine executing on the computer to interpret the script, the script engine having an inter-thread signaling mechanism, wherein the control thread uses the signaling mechanism to alert one of the scripting threads whenever the control thread has sent a message to the one scripting thread.

f. Cancel claims 20-22;

g. Claim 26;

Rewrite claim 26 as follows:

A computer readable storage medium having computer executable instructions; the computer executable instructions performing a method for passing intraprocess messages between scripting threads in a process, the method comprising:

- creating a first scripting thread of execution;
- creating a first thread queue for the first scripting thread;
- obtaining a first address associated with the first thread queue;
- creating a second scripting thread of execution;
- passing, to the second scripting thread, the first address for use by the second scripting thread to send messages to the first scripting thread;
- creating a second thread queue for the second scripting thread;
- obtaining a second address associated with the second thread queue; and
- passing, to the first scripting thread, the second address for use by the first scripting thread to send messages to the second scripting thread.

h. Claims 27;

Rewrite claim 27 as follows:

The computer readable storage medium of 26, further comprising:

- creating a message object;
- inserting the message from the first scripting thread into the message object;
- obtaining a reference to the message object; and
- placing the reference into the second thread queue so that the second scripting thread can access the message.

i. Claim 28;

Rewrite claim 28 as follows:

The computer readable storage medium of 26, further comprising:

 sending a signal from the first scripting thread to the second scripting thread to indicate to the second scripting thread that the message has been sent to the sent to the second scripting thread.

j. Claim 29;

Rewrite claim 29 as follows:

The computer readable storage medium of 28, further comprising:

 inserting a flag in the message object to indicate that the message object is being responded to; and

 placing a reference to the message object into the first thread queue.

II. REASONS FOR ALLOWANCE:

3. The following is an Examiner's statement of reasons for allowance.

4. The prior arts do not expressly teach or render obvious the invention as recited in independent claims 8,14,18 and 26 as amended above.

5. Kougiouris et al. (U.S. 5,881,286) discloses a computer implemented method and apparatus in a computer system for inter-process communication, whereby a client process allocates a first buffer and the client process provided to marshal arguments for

communicating with a second process in the first buffer. The client process indicates that a message for the second process by passing a first reference to the first buffer to the second process.

Alsup et al. (U.S. 6,668,275 B1) discloses the managing of multiprocessor system including a core processor in communication with a remote processor or process or thread, whereby the core processor interacts with distributed processes through internal or external communication channels such as messaging queues, packets, block transfers or shared memory schemes.

However, the prior arts do not teach a method and system for passing messages between threads, in which a sending thread communicates with a receiving thread by passing a reference to the message to a message queue associated with the receiving thread and the reference is passed between threads within a process (intraprocess) nor a method and system for compiling a program such that threads would asynchronously communicate by passing references and using messaging queues, when taken in the context of the claims as a whole.

6. Nor were references uncovered that would have provided a basis of evidence for asserting a motivation that one of ordinary skill in the art at time the invention was made, knowing of a computer implemented method and apparatus in a computer system for inter-process communication, whereby a client process allocates a first buffer and the client process is provided to marshal arguments for communicating with a second process in the first buffer and the client process indicates that a message for the second process by passing a first reference to the first buffer to the second process or

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managing of multiprocessor system including a core processor in communication with a remote processor or process or thread, whereby the core processor interacts with distributed processes through internal or external communication channels such as messaging queues, packets, block transfers or shared memory schemes would have integrated to teach a method and system for passing messages between threads, in which a sending thread communicates with a receiving thread by passing a reference to the message to a message queue associated with the receiving thread and the reference are passed between threads within a process (intraprocess) nor a method and system for compiling a program such that threads would asynchronously communicate by passing references and using messaging queues.

Dependent claims are allowed as they depend upon allowable independent claims.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Charles E. Anya whose telephone number is (571) 272-3757. The examiner can normally be reached on M-F (8:30-5:00).


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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Thomson can be reached on (571) 272-3718. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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